

**RCRA**  
**“EMPTY”**

- Containers

UN 1A2/Y1.2/100  
USA/M5661/06RL

**HAZARDOUS  
WASTE**

**HANDLE WITH CARE!**



- The regulations in §261.7 define when hazardous waste residue in an empty container is exempt from regulation. These regulations specify the requirements for rendering a container or inner liner "empty." To distinguish between the usual meaning of the word "empty" and the strict regulatory definition, the phrase "RCRA empty" is sometimes used. Any hazardous waste remaining in either a RCRA empty container or inner liner is not subject to regulation under RCRA Subtitle C.
- EPA promulgated these regulations to advise owners and operators how to empty their containers so that the containers would no longer be subject to regulation, even if some residues remain in the container. Therefore, these regulations allow an owner or operator to reuse containers or inner liners meeting the provisions in §261.7, since the container is no longer considered to hold hazardous waste.













- A container or an inner liner removed from a container holding nonacute hazardous waste as identified in Part 261, Subpart D, is empty when:



- all wastes have been removed using practices commonly employed industry-wide to remove wastes from containers or liners, such as pouring, pumping, aspirating, and draining (§261.7(b)(1)(i)),  
**and**

- no more than 2.5 centimeters (1 inch) of material remains in the container or liner (§261.7(b)(1)(ii)), **or**

- no more than 3 percent by weight of the container remains for containers with a capacity of 110 gallons or less, and no more than 0.3 percent by weight remains for containers with a capacity greater than 110 gallons (§261.7(b)(1)(iii)).



- On March 4, 2005, EPA finalized changes to the 110 gallon container capacity to conform with the DOT definition for bulk packaging that includes any container with a capacity greater than 119 gallons.

- This final rule is effective September 6, 2005.

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- How much material does 1 inch in a typical 55 gallon container represent?

- Volume of a cylinder
- $3.14(r^2)h$
- Typical drum is 34" tall and 23" in diameter
- Results in 1.8 gallons, ~ 3.3%

# 30 gal container





# Tote Bin



# Roll off container



# Tote Bins &





# Tank Trucks



# Rail Car



- 262.34 Accumulation time.

(m) A generator who sends a shipment of hazardous waste to a designated facility with the understanding that the designated facility can accept and manage the waste and later receives that shipment back as a rejected load or residue in accordance with the manifest discrepancy provisions of §264.72 or §265.72 of this chapter may accumulate the returned waste on-site in accordance with paragraphs (a) and (b) or (d), (e) and (f) of this section, depending on the amount of hazardous waste on-site in that calendar month. Upon receipt of the returned shipment, the generator must:
- (1) Sign Item 18c of the manifest, if the transporter returned the shipment using the original manifest; or
- (2) Sign Item 20 of the manifest, if the transporter returned the shipment using a new manifest.





**TANKS?**

TK-1062

11-10-10-10-10



TOLUENE WASTE

RECIRCULATED



TK-1061

TOLUENE WASTE



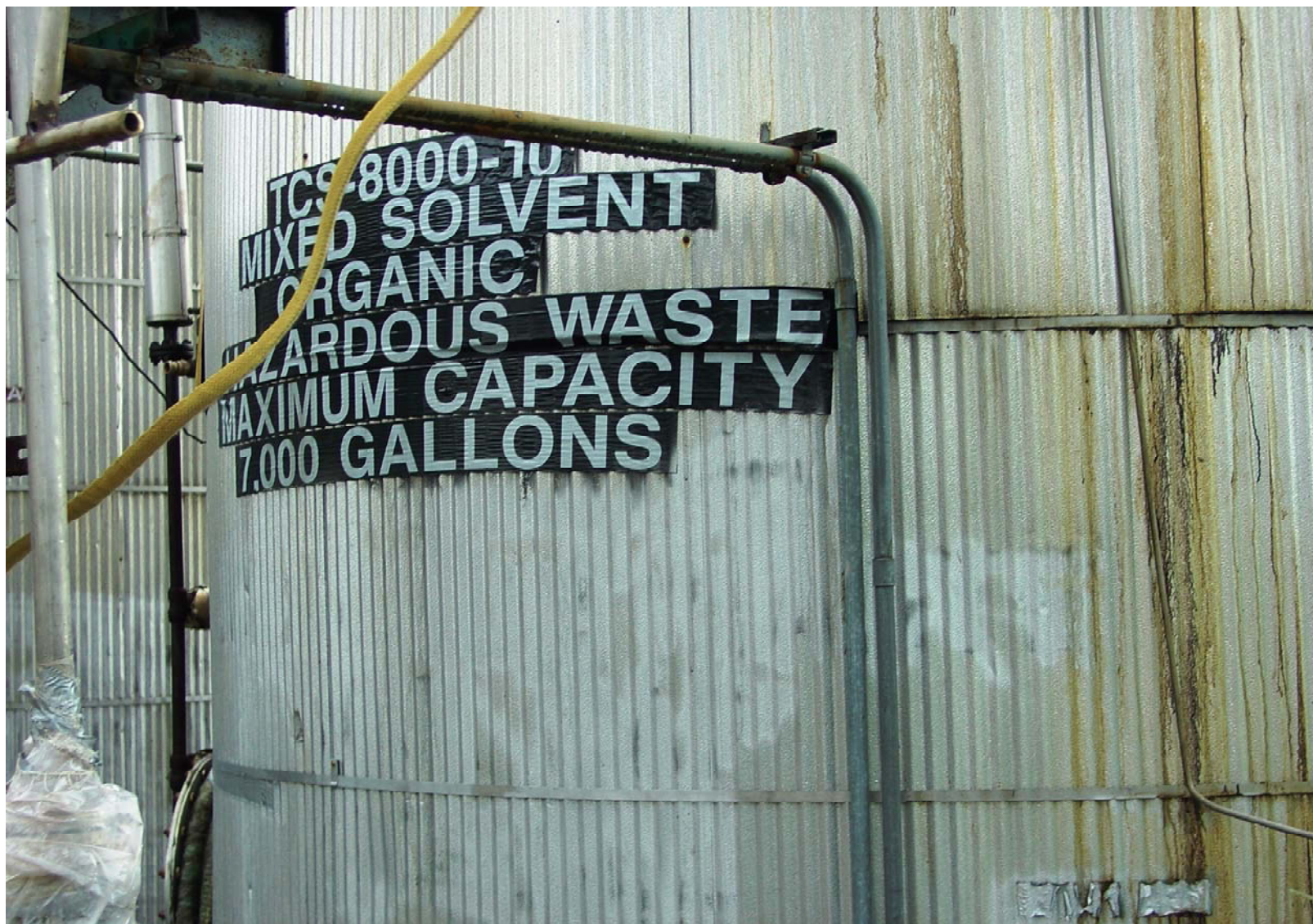


**DANGER**  
CONFINED SPACE  
ENTER BY  
PERMIT ONLY  
**FLAMMABLE**

SOLVENT WASTE TANK  
2000 GALLONS







Hazardous Waste Storage Tank TCS-8000-7, one of ten in the Hazardous Waste Tank Containment Area



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- **Document Record Detail**
- **Full Document: Title:** TURNOVER OF HAZARDOUS WASTES STORED IN GENERATOR ACCUMULATION TANKS
- **RCRA Online Number:** 14764 **Date:** 02/16/2007
- **To:** Hopewell **From:** Hale **Organization of Recipient:** National Paint and Coatings Association
- **Description:** In a batch process, as with accumulation in containers, the 90-day period begins the moment the generator first places hazardous wastes in an “empty tank.” The generator then must remove all wastes from the tank within 90 days from the time he first places wastes in the “empty” tank. A tank will be considered empty when its contents have been drained to the fullest extent possible. Since many tank designs do not allow for complete tank drainage due to flanges, screens or siphons, it is not expected that 100% of the wastes will always be removed. As general guidance, a tank should be considered empty when the generator has left the tank’s drainage system open until a steady, continuous flow has ceased (see also 47 FR 1250; January 11, 1982). Under the continuous flow process, in contrast to the batch process, the tank receives hazardous waste on an ongoing, continuous basis. When wastes are flowing through tanks continuously, there is a means of demonstrating when a tank is “emptied” within 90 days under 40 CFR 262.34(a)(1)(ii) that would not require completely emptying the tank, and that may be more suitable for tanks with continuous flow called mass balance approach. **Regulatory Citation(s):** [262.34\(a\)\(1\)\(ii\)](#), [265.197\(c\)](#), [265.200](#) **Statutory Citation(s):** NA [Read US Code 42, Chapter 82](#) **Topic(s):** Generators; Tanks **Approximate Number of Hardcopy Pages:** 4 **EPA Publication Number:** NARPPC **Number (if applicable):** NA **Official OSW Policy:** Yes
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**RCRAOnlineNumber:**14763  
**Date:**02/16/2007  
**To:**Darling **From:**Hale  
**Organization of Recipient:** National Paint  
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- **Batch Process**
- **Continuous Process**

- In a batch process, as with accumulation in containers, the 90-day period begins the moment the generator first places hazardous wastes in an “empty tank.” The generator then must remove all wastes from the tank within 90 days from the time he first places wastes in the “empty” tank. A tank will be considered empty when its contents have been drained to the fullest extent possible. Since many tank designs do not allow for complete tank drainage due to flanges, screens or siphons, it is not expected that 100% of the wastes will always be removed. As general guidance, a tank should be considered empty when the generator has left the tank’s drainage system open until a steady, continuous flow has ceased (see also 47 FR 1250; January 11, 1982).

- Under the continuous flow process, in contrast to the batch process, the tank receives hazardous waste on an ongoing, continuous basis. When wastes are flowing through tanks continuously, there is a means of demonstrating when a tank is “emptied” within 90 days under 40 CFR 262.34(a)(1)(ii) that would not require completely emptying the tank, and that may be more suitable for tanks with continuous flow called mass balance approach.

The key parameters in this mass balance approach are the **volume** of the tank (e.g., **6,000** gallons), the daily **throughput** of hazardous waste (e.g., **300** gallons per day) and the time period the hazardous waste “resides” in the tank.

In this example, the **hazardous waste** entering the tank would have a residence time of 20 days **((6,000 gallons/300 gallons per day) = 20 days)** and meet the requirements of 40 CFR 262.3(a)(1)(ii) since the hazardous waste has been in the tank for less than **90** days.